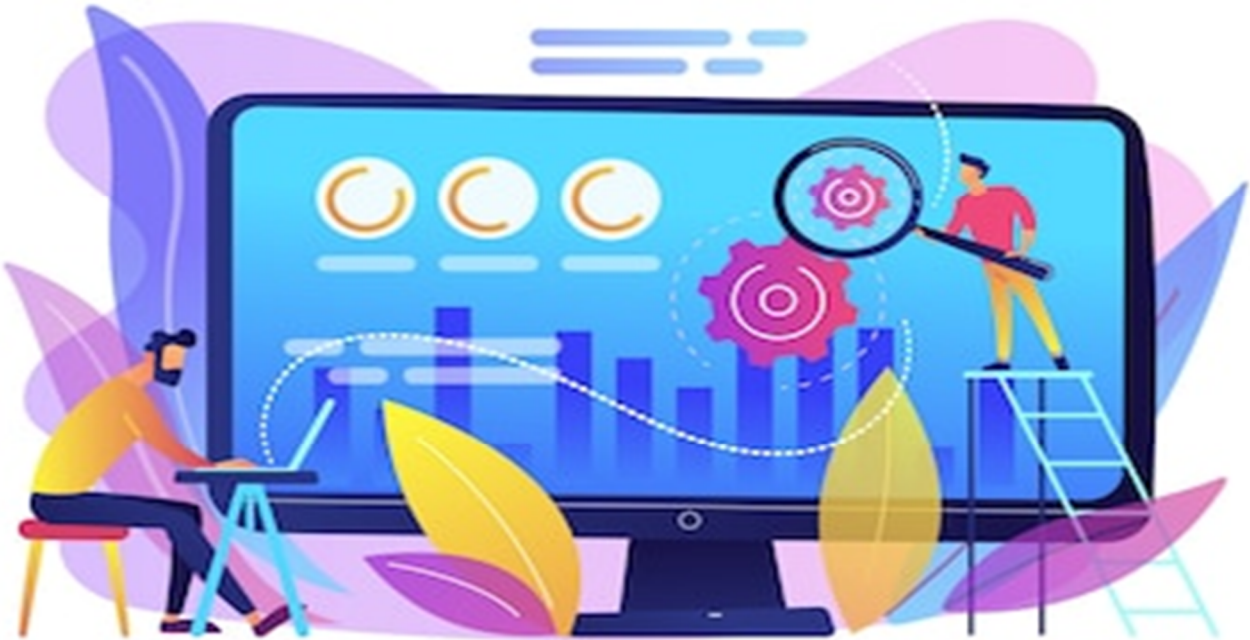




# Lesson Preparation book ICT

5<sup>th</sup>.Prim – Second Term – 2024



Prepared and Designed by/ فريق أصدقاء الكمبيوتر المتخصص

Yasmin Shoaeb

## Teacher's Biography

Name: .....

School: .....

The educational administration: .....

Qualification: .....

Teaching Subject: .....

Comprehensive School: .....

The school to which he is delegated: .....

Date of appointment: .....

The job is on the staff: .....

Teacher Code: .....

Mobile Number: .....



**Teacher**

**Supervisor**

**School Principal**

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## Daily Class Schedule

Session Day	The first	Second	Third	Fourth	Fifth	Sixth	Seventh
Saturday							
Sunday							
Monday							
Tuesday							
Wednesday							
Thursday							

Session Day	The first	Second	Third	Fourth	Fifth	Sixth	Seventh
Saturday							
Sunday							
Monday							
Tuesday							
Wednesday							
Thursday							

**Teacher**

**Supervisor**

**School Principal**

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## The General objectives of computer and information technology

- Providing students with the appropriate amount of scientific and basic knowledge and skills related to how to solve problems.
- Develop basic scientific thinking skills.
- Gaining the ability to use technology, multimedia, and networks and employ them as tools to serve and integrate with different fields of study.
- Training students to work in a team by practicing computer techniques.
- Create websites and define their properties.
- Developing students' awareness of the importance of technological awareness and cultural communication.
- Acquisition of concepts of the principles of designing web pages.
- Developing students' awareness of the importance of technological awareness and cultural communication.
- Recognize the basic principles of designing web pages.
- Pupils' appreciation of the role played by science and scientists.
- Recognize groups in Microsoft Edge.
- Raise students' awareness of the concept of information ethics and the rules of safe use of the Internet.
- Collects data and presents it in an interesting way.



**Teacher**

**Supervisor**

**School Principal**

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## The specific objectives of computer and information technology

**By the end of this Axis, the student will be able to:**

- Identify the importance of digital applications in facing environmental issues.
- Identifies digital applications that are used to share information.
- Realizes the importance of posting accurate information online
- Explains how to use their rights and responsibilities as a digital citizen.
- Explain the concept of social responsibility.
- Understands the importance of being digitally responsible.
- Differentiate between trusted and fake sites.
- expresses his feelings to his colleagues using emojis.
- Explains how to communicate online.
- Discusses the importance of writing and speaking style when communicating online.
- Discusses the contents of the information sites.
- Explains the tools and features that make the website easier to use.
- Defines the tools that can be used to create a website.
- Distinguish between commercial and non-commercial websites.
- Explains how to use the Internet to obtain information.
- Explains how his online activity affects ad impressions.
- Discusses using Microsoft Edge to search and organize information.
- Microsoft Editor is used for editing and spell checking.
- Defines the uses of information resources available on the Internet.
- Explains how to find the most reliable sources.
- Creates a presentation using trusted sources.
- Explains the reasons for using online communication tools.





- Explains the online communication ethics that should be used.
- Determine the methods of using sensor networks to collect data.
- Researches how to use technology to solve problems.
- Think of ways to solve problems using technology.
- Explains how to install computer software safely.
- Discusses how to update computer software.
- Describes the binary number system.
- Reads and writes binary numbers.
- Categorize needs and roles in a project in which he or she is involved.
- Creates a graph to share specific information.
- Explains how to use digital tools such as WordArt and Moviemaker.
- Explains the value of using a storyboard in telling a story.
- Discusses the features that make websites attractive.
- Explains what the HTML markup language is.

**Teacher**

**Supervisor**

**School Principal**

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## Scope and sequence

### THEME 3 Digital Citizenship

LESSON	TOPICS	SKILLS INTEGRATION		
		Life skills	Values	Issues and challenges
<b>LESSON 1</b> Explorer in Action	<ul style="list-style-type: none"> <li>The importance of digital citizenship.</li> <li>Identifying digital platforms to share and store information</li> <li>Environmental concerns</li> </ul>	<b>Learn to know:</b> problem-solving	<b>Scientific values:</b> appreciation of science and scholars	<b>Citizenship issues:</b> national unity; loyalty and belonging <b>Globalization issues:</b> digital citizenship
<b>LESSON 2</b> Digital citizenship and social responsibility	<ul style="list-style-type: none"> <li>Social responsibility</li> <li>Corporate social responsibility</li> </ul>	<b>Learning to know:</b> critical thinking <b>Learning to live together:</b> communication	<b>Personal values:</b> independence <b>Co-existence values:</b> respect	<b>Globalization issues:</b> technological awareness, digital citizenship <b>Citizenship values:</b> awareness of rights and responsibilities, belonging
<b>LESSON 3</b> Online communication	<ul style="list-style-type: none"> <li>Tone of online communication</li> </ul>	<b>Learning to do:</b> decision-making <b>Learning to know:</b> critical thinking <b>Learning to live together:</b> communication	<b>Academic values:</b> appreciation of technology	<b>Environment and development issues:</b> social participation <b>Globalization issues:</b> technological awareness
<b>LESSON 4</b> Information websites	<ul style="list-style-type: none"> <li>Information websites</li> <li>Helpful website features</li> <li>Website creation</li> </ul>	<b>Learning to know:</b> problem-solving	<b>Scientific values:</b> appreciation of science and scholars	Globalization issues: technological awareness
<b>LESSON 5</b> Commercial and non-commercial internet services	<ul style="list-style-type: none"> <li>Commercial and non-commercial internet services</li> </ul>	<b>Learning to know:</b> critical thinking	<b>Work values:</b> perseverance	<b>Globalization issues:</b> technological awareness
<b>LESSON 6</b> Using ICT for content creation	<ul style="list-style-type: none"> <li>Collections – Microsoft Edge</li> <li>Writing help – Microsoft Editor</li> </ul>	<b>Learning to know:</b> creativity	<b>Work values:</b> cooperation	<b>Globalization issues:</b> technological awareness
<b>LESSON 7</b> How to choose online sources	<ul style="list-style-type: none"> <li>Using sources for research</li> </ul>	<b>Learning to know:</b> problem-solving <b>Learning to do:</b> decision-making	<b>Scientific values:</b> appreciation of science and scholars	<b>Citizenship issues:</b> national unity; loyalty and belonging <b>Globalization issues:</b> technological awareness
<b>LESSON 8</b> Choosing between synchronous and asynchronous communication	<ul style="list-style-type: none"> <li>Synchronous and asynchronous communication</li> </ul>	<b>Learning to live together:</b> communication <b>Learning to do:</b> productivity	<b>Live with others values:</b> sharing	<b>Globalization issues:</b> civilizational communication <b>Globalization issues:</b> digital citizenship <b>Globalization issues:</b> technological awareness

## THEME 4 Software Projects

LESSON	TOPICS	SKILLS INTEGRATION		
		Life skills	Values	Issues and challenges
<b>LESSON 1</b> Explorer in Action	<ul style="list-style-type: none"> <li>How technology has been used to solve problems</li> </ul>	<b>Learn to know:</b> creativity <b>Learn to do:</b> productivity	<b>Scientific values:</b> appreciation of science and scholars	<b>Globalization issues:</b> technological awareness, digital citizenship, civilizational communication
<b>LESSON 2</b> How digital devices work	<ul style="list-style-type: none"> <li>Installing software</li> <li>Updating software</li> <li>Troubleshoot screen freezes</li> </ul>	<b>Learn to know:</b> problem-solving	<b>Work values:</b> perseverance <b>Scientific values:</b> appreciation of science and scholars	<b>Globalization issues:</b> technological awareness
<b>LESSON 3</b> An introduction to binary numbers	<ul style="list-style-type: none"> <li>Binary numbers</li> </ul>	<b>Learn to know:</b> problem-solving <b>Learn to know:</b> critical thinking	<b>Scientific values:</b> appreciation of science and scholars	<b>Globalization issues:</b> technological awareness, civilizational communication
<b>LESSON 4</b> Determining the needs for a digital project	<ul style="list-style-type: none"> <li>Determining the needs for a digital project</li> </ul>	<b>Learn to know:</b> problem-solving <b>Learn to know:</b> creativity	<b>Scientific values:</b> appreciation of science and scholars	<b>Globalization issues:</b> technological awareness
<b>LESSON 5</b> Gathering data and presenting information	<ul style="list-style-type: none"> <li>Gathering data and presenting information</li> </ul>	<b>Learn to know:</b> creativity	<b>Work values:</b> proficiency	<b>Environment and development issues:</b> environmental pollution
<b>LESSON 6</b> Presenting information in an appealing way	<ul style="list-style-type: none"> <li>Presenting information in an appealing way</li> <li>Microsoft Word and PowerPoint</li> <li>Movie Maker</li> </ul>	<b>Learn to know:</b> creativity <b>Learn to do:</b> productivity	<b>Scientific values:</b> appreciation of science and scholars	<b>Globalization issues:</b> technological awareness <b>Citizenship values:</b> legal awareness
<b>LESSON 7</b> Producing an effective presentation	<ul style="list-style-type: none"> <li>Producing an effective presentation</li> <li>Storyboards</li> <li>The 10-20-30 rule of Microsoft PowerPoint</li> </ul>	<b>Learn to know:</b> creativity <b>Learn to live:</b> self-management	<b>Scientific values:</b> appreciation of science and scholars <b>Work values:</b> proficiency	<b>Globalization issues:</b> technological awareness, civilizational communication
<b>LESSON 8</b> Web design principles	<ul style="list-style-type: none"> <li>Web design principles</li> <li>Creating a web page</li> </ul>	<b>Learn to know:</b> creativity <b>Learn to live:</b> communication <b>Learn to do:</b> cooperation, productivity	<b>Personal values:</b> independence <b>Scientific values:</b> appreciation of science and scholars	<b>Globalization issues:</b> technological awareness, digital citizenship, civilizational communication

Date				
Class				
Session				

## Third Axis (Digital Citizenship) Lesson 1: The Active Explorer Peg Keiner

### Lesson objectives:

By the end of this lesson, the student will be able to:

- Clarify examples of how information is shared.
- Identify with digital tools in an easy and secure way.
- Realize the importance of posting accurate information online.

### Strategy:

Brainstorming – dialogue and discussion

### Teaching aids:

White board – Student's Book – Power Point  
Presentation – video (Peg Keiner)

### Warm Up:

Why is it important to publish reliable information online?

### Lesson Presentation:

The explorer (**Peg Keiner**) is from Chicago in the United States. She is a Global Goals Ambassador for the United Nations Association Chicago Chapter and a National Geographic Explorer. She is also the Director of Innovation at a school in Chicago.



She decided to help spread awareness of the dangers of waste (**the impact of the Corona virus outbreak**)

She used an app called the **Debris Tracker**, that you can download on your phone for free, recorded the location with GPS, and she described the kind of litter (paper, plastic, etc.). She uploaded the location and the description of the items.

**Debris Tracker**: An application that enables the recording of waste locations via the Global Positioning System, with a description of the type of these wastes....It can be downloaded for free on a mobile phone.

Ms. Keiner used the hashtag **#trackingppe** and piloted social media campaigns to encourage followers in 60 countries.

**Hashtag**: It means a phrase preceded by the symbol **#** to help spread information among the largest number of users through various social media.

**Go Green** initiative: An initiative launched by the **Egyptian Ministry of Environment** to encourage a more responsible approach in dealing with plastic waste and other types of waste, and to emphasize the role of every citizen in protecting the environment.



### Evaluation:

**Complete**: .....: an application that enables the recording of waste locations via the Global Positioning System

### Homework:

**Solve The book's Questions P.13**



Date				
Class				
Session				

## Third Axis (Digital Citizenship) Lesson 2: Digital citizenship and social responsibility

### Lesson objectives:

- By the end of this lesson, the student will be able to:**
- **Clarify** examples of how information is shared.
  - **Identify** with digital tools in an easy and secure way.
  - **Realize** the importance of being digitally responsible.

### Strategy:

Brainstorming – dialogue and discussion – problem solving.

### Teaching aids:

White board – Student's Book – Power Point Presentation

### Warm Up:

**How** can you express your opinion online?

### Lesson Presentation:

You've previously learned, in grade 4, about the **rights and responsibilities** you have as a digital citizen.

#### Rights:

- \* Privacy.
- \* Protection from piracy
- \* Ability to engage with others online.
- \* Provide and access information online.
- \* Ability to use the internet when you need to.

#### Responsibilities:

- \* Respect others' privacy.
- \* Respect various sources.
- \* exhibit positive behavior in
- \* Interactions with others.
- \* Ensure safe sharing online.

#### Expressing opinion in light of social responsibility:

- \* Express your opinions in a positive way.
- \* Be sure that your information accurate and easy to understand. Don't spread false information.
- \* Make sure the information you share, and its purpose, are clear.

#### Corporate social responsibility

Companies also use the internet to help others, by addressing environmental concerns or supporting important causes.

This is called **corporate social responsibility (CSR)**. Today, many companies include CSR tasks as part of their business plans, to provide help to communities around the world.



### Evaluation:

#### Put ✓ or X:

Today, many companies include CSR tasks as part of their business plans ( )

### Homework: Solve The book's Questions P.16 – 17



Date				
Class				
Session				

## Third Axis (Digital Citizenship) Lesson 3: Online communication

### Lesson objectives:

- By the end of this lesson, the student will be able to:**
- **Discuss** how to communicate online with people.
  - **Acquiring** writing and speaking skills when communicating via the Internet in an ethical manner.
  - **Expresses** his feelings to his colleagues using emojis.

### Strategy:

Peer learning – dialogue and discussion – problem solving.

### Teaching aids:

White board – Student's Book – Power Point Presentation

### Warm Up:

**Which** is better for you to communicate with your colleagues online or face to face? And **why**?

### Lesson Presentation:

🌸 **If you're communicating with a teacher, or a person of authority**, be polite and respectful, and use titles. If you haven't met the person you're writing to yet, be sure to introduce yourself, be clear about what your message is about, State your reason for sending the message up front.

🌸 **If you're communicating with a peer or classmate you don't know well**, be sure to use their full first name. Don't abbreviate it or use nicknames.

🌸 **If you are communicating with a close friend or family member**, using these abbreviations or nicknames is appropriate, but always remember to be polite.

**Remember, when you are on a video call, your emotions will be visible to everyone, but feelings are more difficult to convey through written messages sometimes.**

#### Positive Online Communication

Nonverbal communication is lost online and meaning can be misinterpreted negatively because it does not explain tone of voice, gestures, posture, and eye contact. **As a result**, it's important to be positive when communicating online.

→ **Use positive words.**

→ **Be conversational:** Add warmth with familiar words

→ **Use emojis:** Emojis add tone and emotion.

→ **Begin and end with positive phrases:** Use friendly or encouraging phrases such as (**How are you?**)

→ **Assume the best:** It's easy to misinterpret online communication in a negative way, When this happens, try to identify the person's meaning.

### Evaluation :

**Complete:**

It's important to be ..... when communicating online.

### Homework:

**Solve The book's Questions P.20 – 21**



Date				
Class				
Session				

## Third Axis (Digital Citizenship) Lesson 4: Information websites

### Lesson objectives:

By the end of this lesson, the student will be able to:

- **Discuss** what's included on information website.
- **Explain** the tools and features that make a website easier to use.
- **Realize** the importance of tools that can be used to create websites.

### Strategy:

Brainstorming – Dialogue and discussion – Cooperative learning

### Teaching aids:

White board – Student's Book – Power Point Presentation

### Warm Up:

**Why** is it important to publish reliable information online?

### Lesson Presentation:

#### Information websites

The Alexandria Digital Library, and the Egyptian Knowledge Bank are examples of reliable online libraries.

#### The Egyptian Knowledge Bank (EKB) offers:

- \* The world's largest collection of online educational resources, including articles, dictionaries, encyclopedias and books, and video, audio, and interactive files.
- \* Files can be downloaded to your device.
- \* Content suitable for all ages.
- \* Safe and accurate sources.
- \* Free access for all Egyptian citizens.
- \* Material that is subject to copyright.



بنك المعرفة المصري  
Egyptian Knowledge Bank

LOGO: ADAM96.COM

#### Helpful website features

- **Search engines** inside the website are found directly within a web page and provide results based on what you type in the field.
- **Menus** also help you to find information.
- **Icons** can be clicked to reach other sections or webpages.
- **Contact** and **About** fields are easy to find so visitors can contact or learn more about the people involved in a website.

#### Website Creation

Software programs like **WordPress** are used to create websites. When you start creating your website, you can choose a blank template or choose one of the software's pre-loaded templates.



**Note:** When creating a website, be sure to consider the photos and videos, and font size/type. You want your site to be user friendly and visually appealing.

### Evaluation :

#### Complete:

.....Short paragraphs of information provide an overview of the website.

### Homework:

**Solve The book's Questions P.24 – 25**

Date				
Class				
Session				

## Third Axis (Digital Citizenship)

### Lesson 5: Commercial and non-commercial internet services

#### Lesson objectives:

By the end of this lesson, the student will be able to:

- **Different** between commercial and non-commercial websites.
- **Uses** The Internet to obtain information about products in an accurate manner.
- **Realize** how his online activity affects ad impressions.

#### Strategy:

Active Learning – Critical Thinking

#### Teaching aids:

White board – Student's Book – Power Point Presentation

#### Warm Up:

**Why** is it important to publish reliable information online?

#### Lesson

#### Presentation:

**Websites are either** commercial or non-commercial.

**The purpose of commercial** websites is to sell products or services. Like (**Amazon**) **amazon**

**The purpose of non-commercial** websites is to provide information or raise awareness on an issue like ( **The Egyptian Knowledge Bank** )



Be wary of fake **reviews**. They're usually written because a business wants to make their product seem more appealing, so they write their own **positive reviews** or have family or friends do it. Sometimes a rival business will post **negative** reviews under a false name.

**Reviews and Ratings:** One of the ways you can get information about a product.

**Advertisements:** Websites can use information about the sites you visit, and in any online accounts you have, to place advertisements, that are geared towards your interests, geographic location, age, and gender.

#### Evaluation :

**Complete:**

..... One of the ways you can get information about a product.

#### Homework:

**Solve The book's Questions P.28 – 29**



Date				
Class				
Session				

## Third Axis (Digital Citizenship)

### Lesson 6: Using ICT for content creation

#### Lesson objectives:

By the end of this lesson, the student will be able to:

- **Different** between commercial and non-commercial websites.
- **Uses** The Internet to obtain information about products in an accurate manner.
- **Realize** how his online activity affects ad impressions.

#### Strategy:

Dialogue and discussion – Practical Training

#### Teaching aids:

White board – Student's Book

#### Warm Up :

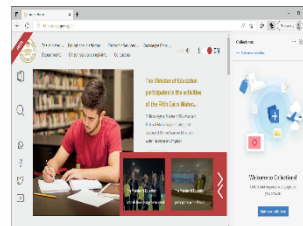
**Discuss** what you do to plan, organize, create, and present research projects you're assigned.

#### Lesson Presentation:

**Microsoft Edge** is the web browser that comes with Microsoft Windows, can help you browse, search, stream and more.

#### The Collections feature in Microsoft Edge:

- Organizes research in one place and on multiple devices.
- You can start a collection for each new project or assignment.
- You can add entire web pages, but you can also add individual videos, images (including charts and graphs), text, links and notes.
- You can also export each collection to other apps such as Excel and Word.



#### To start a collection :

- Select **Collections** on the toolbar.
- Select Start a **New Collection**.
- Type the **title** of your collection in the box.
- Add content by selecting **Add current page**.
- Drag an image into the collection.
- Select text or links and drag them into a collection.

#### Writing help – Microsoft Editor

Use Microsoft Editor to check for spelling and grammar. The editor will highlight problems such as capitalization errors, sentence fragments and missing or incorrect words and punctuation and make a suggestion to correct each error. You decide whether to accept or ignore each suggestion.

#### Evaluation :

#### Complete:

From feature in Microsoft Edge....., .....

#### Homework:

**Solve The book's Questions P.32 – 33**



Date				
Class				
Session				

## Third Axis (Digital Citizenship)

### Lesson 7: How to choose online Sources

#### Lesson objectives:

By the end of this lesson, the student will be able to:

- **Determine** the use of information web sources available online.
- **Explain** how to tell which sources are more reliable.
- **Create** a presentation using reliable sources.

#### Strategy:

Dialogue and discussion – Practical Training

#### Teaching aids:

White board – Student's Book

#### Warm Up :

**How** does evaluating sources make you a good digital citizen?



#### Lesson

#### Presentation:

### USING SOURCES FOR RESEARCH

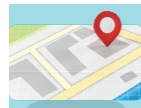
#### ONLINE LIBRARIES

These are helpful for searching different media, such as images or videos. Online libraries sometimes include dictionaries, thesauruses, and encyclopedias, but these are also on separate sites, too. Make sure they are verified.



#### ONLINE MAPS

These can provide clear and accurate directions to the required places such as Google Maps.



#### ONLINE MUSEUMS

These can also be wonderful reference sites that allow you to view museums digitally, and they generally include information about each museum.



#### SPECIALIZED SEARCH ENGINES

Specialized search engines such as Google or Bing are very useful. Try to use appropriate keywords in your search, otherwise some results might not be relevant. General search engines are also useful, but may lead you to unreliable pages or – even worse – unsafe pages.



#### A WEBSITE'S META INFORMATION

Websites include meta information, such as keywords, information about the site, and what it contains. When you use a search engine and get a set of results.



#### Evaluation :

**Complete:**

From specialized search engines....., .....

#### Homework:

**Solve The book's Questions P.36 – 37**

Date				
Class				
Session				

### Third Axis (Digital Citizenship) Lesson Choosing between synchronous and asynchronous communication

#### Lesson objectives:

By the end of this lesson, the student will be able to:

- Clarify the reasons for using online communication tools.
- Explain online communication ethics to use.
- Communicate effectively online.

#### Strategy:

Brainstorming – dialogue and discussion – role playing.

#### Teaching aids:

White board – Student's Book – presentation

#### Warm Up :

Can you think of a time when you had to communicate with someone in person? Would you have been able to have the same conversation over video chat or another online method? Why? / Why not?

#### Lesson Presentation:

**Synchronous communication** is real-time communication between people, with everyone interacting and taking in information at the same time using digital tools such as video chats, live television shows, and instant chat rooms.

Synchronous communication is useful when you are writing about a lighthearted, everyday matter to friends or family and you need an immediate or quick response.

**Asynchronous communication** is communication that does not occur in real time and does not require an instant response. Asynchronous communication tools include email, voice and text messages and recorded videos.

Asynchronous communication is useful when you are writing about serious or complicated matters with someone you don't know well or with someone in authority and you don't need an answer right away.

Whenever you're communicating, you should respect the following:

- Be polite.
- Be patient.
- Be helpful.
- Be clear.



#### Evaluation :

**Complete:**

There are two types of communication....., .....

#### Homework:

**Solve The book's Questions P.40**



Date				
Class				
Session				

### Third Axis (Digital Citizenship) Review on the third Axis

**Lesson objectives:**

**By the end of this lesson, the student will be able to:**

- **Clarify** the reasons for using online communication tools.
- **Explain** online communication ethics to use.
- **Communicate** effectively online.

**Strategy:**

Brainstorming – dialogue and discussion  
– Cooperative learning

**Teaching aids:**

White board – Student's Book – presentation

**Warm Up:**

After what you learned in the third axis... **How** do you see yourself as a better digital citizen?

**Lesson**

**Presentation:**

**Write and compare**

Write a sentence for each set of words to explain the connection between them. Then compare your sentences with a partner.

1. digital citizenship and social responsibility
2. specialized search engines and meta information
3. reviews and video advertisements

**Read and answer**

1. Write a sentence on how to embrace digital citizenship and social responsibility.
2. How can you show mindfulness when choosing a website to visit or online shop to purchase from?
3. Give one example of when you might use formal language when communicating online on one example of informal language.
4. How are specialized search engines different from general search engines?

**Evaluation :**

Evaluate the student's answer.

**Homework:**

**Solve The book's Questions P.41 – 42**





# Fourth Axis

## Software projects

Date				
Class				
Session				

**Fourth Axis**  
**(Software Projects)**  
**Lesson 1: The Active Explorer**  
**Diego Ponce de Leon**

**Lesson objectives:**

- By the end of this lesson, the student will be able to:**
- **Identify** ways of using sensor networks to collect data
  - **Research** how technology was used to solve problems.
  - **Think** of ways to solve problems using technology.

**Strategy:**

Brainstorming – dialogue and discussion .

**Teaching aids:**

White board – Student's Book – presentation – video about (Dr. Diego)

**Warm Up:**

**How** does technology help you in your everyday life?

**Lesson Presentation:**

**Dr. Diego Ponce de Leon** holds a PhD from the Energy and Resources Group, University of California Berkeley.

✂ He develops the use of technology to build renewable energy-related data infrastructure and systems. These data systems allow him to collect data on power grids in order to improve the power system and reduce energy waste.

✂ **Dr. Ponce de Leon's** work helps devices work efficiently by connecting all the refrigerators and air conditioners together by a thermostat, a switch that measures temperature in air conditioners and refrigerators, and programming a computer to monitor and control them. He used sensors (**devices which communicate information back to a computer**) to monitor the appliances, and he used his knowledge of software to program the air conditioners and refrigerators in a new, energy-efficient way.

**Dr. Ponce de Leon** used the **sensors** to monitor how much energy the refrigerators and air conditioners used throughout the day.

✂ **In Egypt, a similar system** is being used **for a different reason**. Egypt has been increasing its agricultural land to ensure food security. To ensure water is being used efficiently in newly reclaimed areas, a data and information management system was built. The system is based on monitoring and remote sensing data. This data helps engineers make decisions and improve the irrigation systems.

**Evaluation:**

**Put ✓ or X:**

Using technology to collect data is crucial in planning for the future ( )

**Homework:**

**Solve The book's Questions P.48 – 49**



Date				
Class				
Session				

**Fourth Axis**  
**(Software Projects)**  
**Lesson 2: How digital devices work**

**Lesson objectives:**

**By the end of this lesson, the student will be able to:**

- **Explain** how to install computer software safely
- **Discuss** how to make computer software updates
- **Explain** how to troubleshoot screen freezes.

**Strategy:**

Brainstorming – dialogue and discussion – Practical Training

**Teaching aids:**

White board – Student's Book – presentation

**Warm Up:**

**How** does technology help you in your everyday life?

**Lesson**

**Presentation:**

**Tips for common ICT issues**

**INSTALLING SOFTWARE**

**Windows PC:** Find the program online. Click the **download** button. Click on the file, located in Downloads. A box will pop up. Follow the instructions to finish the installation process.

**Android device:** Tap on the **Apps** icon. Go to the App store (**Google Play stores**). Find the app you're looking for and click install.

**UPDATING SOFTWARE**

Many programs install necessary updates automatically.

**Windows PC:** Some major updates require a restart. Windows will prompt you when this is the case. To manage updates, go to the following: **Start button** → **Settings** → **Update and Security** → **Windows update**

**Android device:** To check for updates, go to **System** → **System Update**, Here, you will find updates that still need to be installed, follow the instructions to install the necessary updates.

**Troubleshoot screen freezes**

**Windows PC:** Press and hold the “Ctrl,” “Alt,” and “Del” buttons

**Android device:** Hold down the power button for 30 seconds and restart

**Binary numbers system:** Computers use binary to store data more efficiently. The binary system uses the two values **1** and **0** to express the binary numbers system, (**1** means **on**, **0** means off)

**Evaluation:**

**Put ✓ or X:**

Computers use binary to store data more efficiently. ( )

**Homework:**

**Solve The Book's Questions P.52 – 53**



Date				
Class				
Session				

## Fourth Axis (Software Projects) Lesson 3: An introduction to binary numbers

### Lesson objectives:

By the end of this lesson, the student will be able to:

- **Explain** why computers use the binary number system to store data.
- **Describe** the binary number system.
- **Read** and write binary numbers.

### Strategy:

Cooperative learning – dialogue and discussion – Practical Training

### Teaching aids:

White board – Student's Book – presentation

### Warm Up:

**How** do computers send, receive, and store information?

### Lesson

### Presentation:

Although computers can perform amazing tasks quickly, they really **only understand** information represented by **1s and 0s**, something also called **yes/ no, on/off**.

This is the **binary number system** and it's used to send, receive and store information on digital electronic devices such as computers, phones and calculators

**Binary** has just two unique numerals (**1 and 0**) and is therefore called a **base two system**. Just like the decimal system, when binary runs out of unique digits, it adds a digit on the left.

**The decimal system** has ten unique numerals (**0-9**) and is therefore also called the **base ten system**.

We use these ten number symbols to represent all possible numbers. That means that once we count past the number nine, we add one of the ten unique number symbols as a digit on the left, We use this system so much that we don't even realize the steps we have to go through to get a number such as "**157**"

Decimal	Binary				
	x16	x8	x4	x2	x1
1	0	0	0	0	1
2	0	0	0	1	0
3	0	0	0	1	1
4	0	0	1	0	0
5	0	0	1	0	1
6	0	0	1	1	0
7	0	0	1	1	1
8	1	0	0	0	0
9	1	0	0	0	1

Computers are simple and efficient. Just like a light switch, the simplest, efficient design for computer wires and circuits is to allow only two states: on and off. That's why the binary number system works so well for sending, receiving and storing digital information.

### Evaluation:

**Put ✓ or X:**

The binary number system works so well for sending, receiving and storing digital information. ( )

### Homework:

**Solve The book's Questions P.56 – 57**



Date				
Class				
Session				

**Fourth Axis**  
**(Software Projects)**  
**Lesson 4: Determining the**  
**needs for a digital project**

**Lesson objectives:**

**By the end of this lesson, the student will be able to:**

- **Explain** the digital tools I may need to work on a project.
- **Classify** the needs and roles in a group project I'm working on.
- **Share** my feelings on my role in a group project.

**Strategy:**

Cooperative learning – dialogue and discussion – Brainstorming

**Teaching aids:**

White board – Student's Book – presentation

**Warm Up :**

**How** do you plan for a new project? **Do** you prepare differently when being assigned a group project than when you are assigned an individual project?



**Lesson**

**Presentation:**

**Elements of good planning:**

- **Knowing** the purpose of final products.
- **Determine** a list of needed elements for the project.
- **Prepare** the required tools for each part of the project.
- **Assigning** roles based on the strengths and interests of each group member.

**some tools you may need for a group project:**

**Microsoft Word:** Word (in Microsoft Office 365) is an efficient program to use when working on projects. Not only can group members work together at the same time, but with an internet connection, This can be done by setting up online editing.

**Microsoft Paint:** You can save the images you create and insert them into your document.

**Email:** Use email to send your work to other group members or to your teacher. Write your ideas in a message or attach a document. Remember to always tell your group members that you're sending an attachment, so they know that it's safe to open.

**Understanding the roles group members will play in the project is important. Before you start, speak to your group members to discuss the following:**

- ✍ The strengths of each group member .
- ✍ The things needed to complete the project: pictures, text, data, etc.
- ✍ The tools that will be needed to complete each section of the project
- ✍ The format that will be used to deliver information.



**Evaluation :**

**Complete:**

From Elements of good planning....., ..... و .....

**Homework:**

**Solve The book's Questions P.60 – 61**



Date				
Class				
Session				

**Fourth Axis**  
**(Software Projects)**  
**Lesson 5: Gathering data and presenting information**

**Lesson objectives:**

**By the end of this lesson, the student will be able to:**

- **Discuss** how to research, collect, classify, and process information to share with others.
- **Explain** the importance of digital information handling skills.
- **Create** a graph to share specific information.

**Strategy:**

dialogue and discussion – Brainstorming – Practical Training

**Teaching aids:**

White board – Student's Book – presentation

**Warm Up:**

**How** can you gather information about the issue and present it to others?

**Lesson**

**Presentation:**

**Some useful tools in Excel:**

- ✿ **Add up numbers:** Select the cells you want to add together. Then click: Home Tab → AutoSum Enter
- ✿ **Add titles or labels (e.g., for an axis) to a graph/chart:** Toolbar → Chart Design → Add Chart Element
- ✿ **Choose the color of a graph/chart:** Toolbar → Chart Design → Format
- ✿ **Choose the type of a graph/chart:** Toolbar → Chart Design → Change chart type
- ✿ **Choose the layout of a graph/chart:** Toolbar → Chart Design → Quick Layout

**Digital information-handling skills**

You can research, collect, classify and process information using digital information handling skills.

**Research:** When researching a topic, first define a research question, then use the internet or offline sources, such as digital books found on your device or in the school library, to find information.

**Collection:** You can use Word, Excel (for numeric data), and pen and paper. Put data into specific files and folders for different types (e.g. images, text, videos, tables).

**Classification:** Excel graphs are one example of how you can classify and provide a visual representation of data drawn in the form of a graph.

**Processing:** Once you have researched, collected, and classified your information, you want to process it to get to results and share them with others. You could use Word for a report, Excel for a spreadsheet, or PowerPoint to create a presentation.

**Evaluation:**

**Put ✓ or X:**

A graph help enhance information in a report or presentation.

**Homework:**

**Solve The book's Questions P.64 – 65**



Date				
Class				
Session				

**Fourth Axis**  
**(Software Projects)**  
**Lesson 6: Presenting information**  
**in an appealing way**

**Lesson objectives:**

**By the end of this lesson, the student will be able to:**

- **Discuss** the importance of using visuals and audio (multimedia) to enhance an informational presentation.
- **Explain** how to use digital tools like WordArt and Movie Maker.
- **Discuss** how I can use what I learned to make my own presentation more appealing

**Strategy:**

dialogue and discussion – Brainstorming – Practical Training

**Teaching aids:**

White board – Student's Book – programs (**Word – PowerPoint – Movie Maker**)

**Warm Up:**

**How** can we make a presentation visually appealing, too?

**Lesson**

**Presentation:**

**Microsoft Word and PowerPoint**

**Text** can show important information in an appealing way. Consider using **one** or **two** colors to show emphasis on specific information, and put important text in **bold** to make key information stand out.

- Use the **formatting tools** to do this.
- You can also **insert WordArt** to make text have even more impact.
- In PowerPoint consider using different **background colors**.
- **Photographs** that reflect the topic of your message can catch the viewer's eye.
- You can also **insert shapes** or even your own drawings.
- **Graphs and charts** are a good way to share data, especially numbers.
- Add **audio** to enhance a text or image. Be sure there's a clear link to the visual displayed data, and that it's not too long or distracting.
- Consider using **video** clips in your presentation – ones you find online, or videos you have made.

**Movie Maker**

- You can use Movie Maker to make a film from a selection of still images.
- The intellectual property rights of others should be respected when using their photos, videos and audio files.



**Evaluation:**

**Complete:**  
Some element for a good presentation .....

**Homework:**

**Solve The book's Questions P.68 – 69**

Date				
Class				
Session				

**Fourth Axis  
(Software Projects)**  
**Lesson 7: Producing an effective presentation**

**Lesson objectives:**

- By the end of this lesson, the student will be able to:**
- **Explain** the value of using a storyboard to tell a story.
  - **Discuss** the 10-20-30 rule and how it relates to presenting information.
  - **Create** a presentation for the issue I want to share.

**Strategy:**

Dialogue and discussion – Cooperative learning – Practical Training

**Teaching aids:**

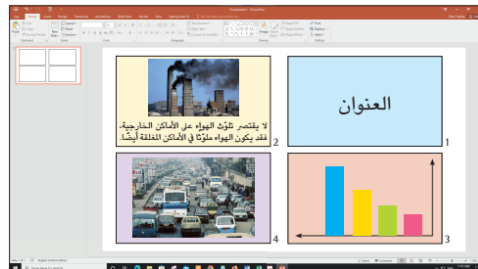
White board – Student's Book – presentation – program (**PowerPoint**)

**Warm Up :**

**What** do they do to get your attention while presenting? **How** effective are those methods?

**Lesson Presentation:**

Using **Microsoft PowerPoint** to make storyboards can be valuable to help producing an effective presentation. **Storyboards allow you to plan your ideas and pre-visualize** the results of a presentation. Make a very rough version of your presentation with a description of each slide, then go to **View** → **Slide Sorter** to see an overview of your presentation.



✎ A **Storyboard** is a chart that shows a sequence of content that forms a plan or outline of your presentation.

✎ As you can see, a **Storyboard** helps you organize your ideas in order, allows you to tell the story you want in a simple way, and helps you give an organized and understandable presentation.

**The 10-20-30 rule of Microsoft PowerPoint**

Let's learn about the 10-20-30 rule of PowerPoint:

A PowerPoint Presentation shouldn't present too much information or take up too much time that will overwhelm the audience. Font size should be easy to read.

**10:** up to ten slides only

**20:** no longer than 20 minutes

**30:** font no smaller than 30-point size

When your presentation is taking shape, look at the '**Design**' tab, in PowerPoint which offers alternatives to the normal black-and-white design of your presentation.

**Evaluation:** Put ✓ or X:

A PowerPoint Presentation shouldn't present too much information ( )

**Homework:** Solve The book's Questions P.72 – 73

Date				
Class				
Session				

**Fourth Axis**  
**(Software Projects)**  
**Lesson 8: Web design principles**

**Lesson objectives:**

**By the end of this lesson, the student will be able to:**

- **Discuss** the features that make websites appealing.
- **Explain** what HTML coding is and how it can help build a web page.
- **Create** a poster, presentation, or simple web page to share a story.

**Strategy:**

Dialogue and discussion – Brainstorming – Practical Training

**Teaching aids:**

White board – Student's Book – presentation – program (Word)

**Warm Up:**

**What** websites do you like? **Which** features make them appealing?

**Lesson**

**Presentation:**

**In Theme 3, Lesson 4, we asked what you would include on a website if you created your own.**

🔗 **HTML (Hypertext Markup Language):** is the language that will be displayed on a web browser. It's refer to (**HyperText Markup Language**).

🔗 **To create a web page:**

1. Open "**Word**" program.
2. From "**View**" select "**Web Layout**".
3. Save your file as a web page from "**File**" menu, select "**Save as**", then "**Web page**".

🔗 **Elements of a web page:**

- 🌸 **Head title – Subhead Title.**
- 🌸 **Main Text.**
- 🌸 **Picture – Audio file – Video**

**Consider font size and color** for each piece – the main text will be smaller, but must still be clearly visible. Use simple fonts so your message is not hard to read.



**Evaluation:**

**Put ✓ or X:**

HTML can be used as a planning tool for creating your web page ( )

**Homework:**

**Solve The book's Questions P.76 – 77**



Date				
Class				
Session				

Fourth Axis  
(Software Projects)  
Review on the fourth Axis

Lesson objectives:

By the end of this lesson, the student will be able to:

- **Mention** the most important information he has gained in this axis.
- **Discusses** how to break down big problems into small ones.
- **Solve** some of the exercises on the axis.



Strategy:

Dialogue and discussion – Brainstorming – Collaborative learning

Teaching aids:

White board – Student's Book – presentation

Warm Up :

**What** are the most important topics of the fourth axis?

Lesson Presentation:

**First question: State the difference between each of the following:**

1. computer and binary system
2. storyboard and PowerPoint
3. HTML and web page

**2 Read and answer:**

1. What was the strategy that Dr. Ponce de Leon used to balance the power grid?
2. How can you unfreeze an Android screen?
3. What is the binary number system used for?

**Evaluation:** Evaluate student's answer.

**Homework:** Solve The book's Questions P.78 – 79

